CMS GIUM

Global Initiative on Ungulate Migration

FACT SHEET

Zebra © Grant Hopcraft

Plains Zebra: Serengeti-Mara, Tanzania & Kenya

Migration Description

More than 200,000 zebras migrate through the Serengeti-Mara ecosystem, constituting Africa's largest zebra migration, according to the Tanzania Wildlife Research Institute. Zebras in the greater Serengeti-Mara ecosystem migrate primarily in response to seasonal rains. During the wet season, family groups (usually a stallion plus two or three mares and their offspring) merge with others to form large herds and migrate to the southern grasslands. While on the plains, the zebra migration is mostly constrained to areas with large amounts of grass biomass. Although they occasionally foray onto the high-quality short-grass plains in the extreme southeast, their movement tends to focus on grazing the long-grass plains. As the dry season advances, the herds move northwards and westwards into the woodlands while avoiding the thicket patches, which often conceal predators. Some family groups spend the dry season in the large, grassy savanna meadows of the Western Corridor, while others head north. Other family groups migrate as far as the Masai Mara in Kenya. The migratory routes of individuals are often similar between years, with animals crossing rivers at nearly the same place. Foaling is year-round, although there tends to be a small peak in foaling rates associated with the rainy season.

Threats to Migration

Zebra are highly risk averse and evidence from GPS-collared animals suggest they react strongly to human encroachment and disturbance. The expansion of agriculture combined with high densities of livestock in some of the multiple-use areas around the ecosystem constrains the zebra's migratory movements to confined spaces within protected areas. Substantial infrastructure development geared towards mass tourism within the core protected areas may also be affecting zebra movement and occupancy.

Zebra foals are especially vulnerable to predation. Any human impacts that alter predation rates (such as artificial water holes, promoting woody encroachment, and funneling migrants into predictable areas) could negatively affect the population. Zebra are often caught as bycatch in illegal bushmeat snares aimed at trapping wildebeest, though recent efforts focused on snare-removal and community engagement have successfully reduced poaching rates in the Serengeti.

Because it's the dry season refuge, the Mara River's flow is the most critical vulnerability of all the Serengeti migrations. Human activity in the last decade has significantly reduced the river's flow. In the last seven years, discharge meters have recorded the first instances of no-flow in the Mara River. If the Mara stops flowing, the zebra population will decline if the remaining dry season water sources are not sufficient.

Local Population Facts

Migration

Seasonal

Long — *81.5 km (avg.)*

Threats

Climate change · Energy dev. · Urban sprawl · Linear barriers

Agriculture · Livestock · Illegal killing · Other

Species Facts

Common name: Plains zebra (subspecies: Grant's zebra)

Species name: *Equus quagga boehmi*

Range: Sub-Sahara Africa

Diet: Almost entirely C4 grasses

Global population: 500,000, but declining

IUCN Conservation Status

NT Near threatened

CMS Status

Not listed

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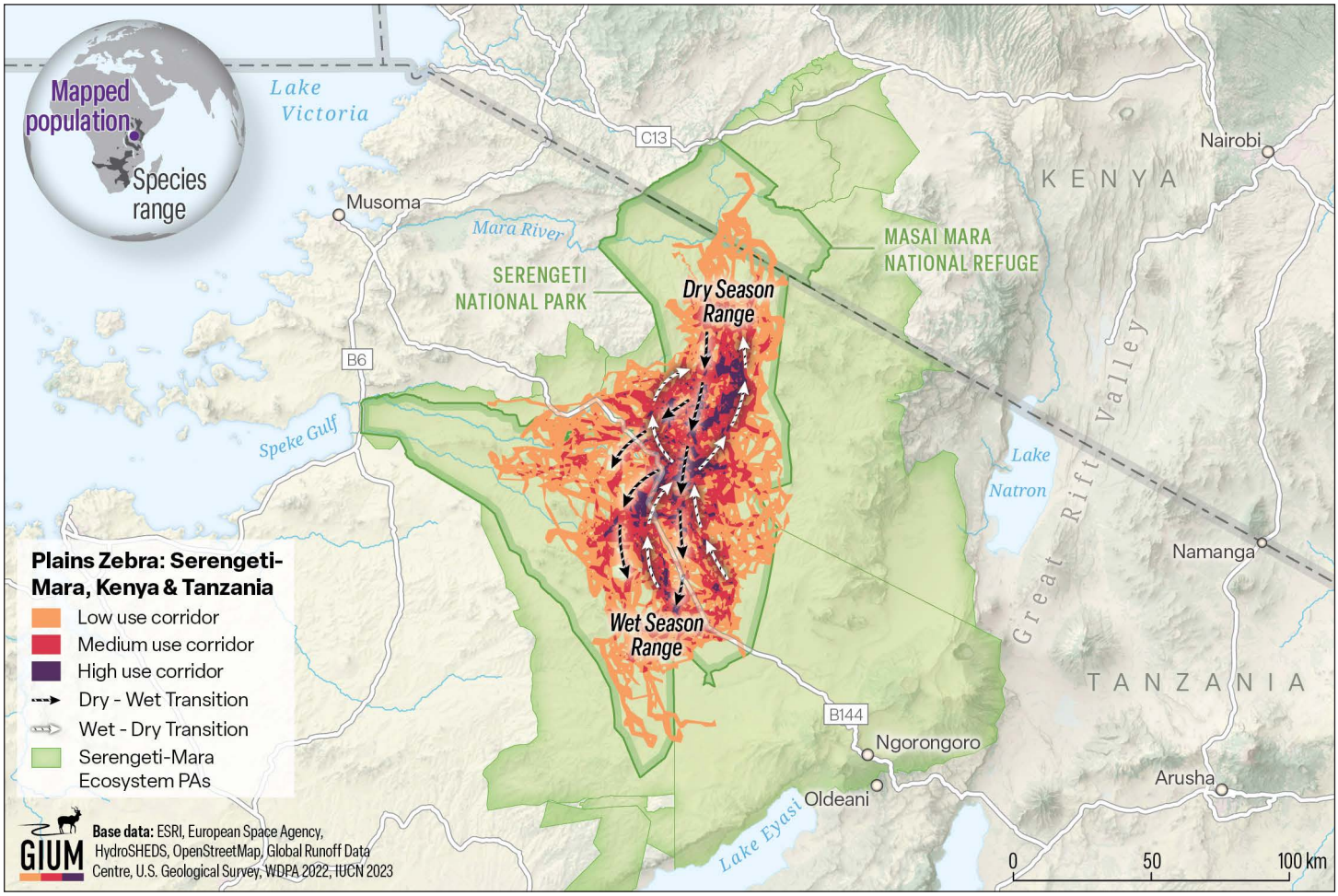
Plains Zebra Migration



Wet season range				Wet to dry season migration		Dry season range					Dry to wet season migration	
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec

Study Information

Sample size
20 individuals (migratory), 34 individuals (in total)

Relocation frequency
minimum 4 and maximum 12 GPS fixes/ day

Project duration
9 years between 2006–2020

Data Analysis

Delineation of migration periods
Net squared displacement to delineate migration between dry and rainy season ranges

Models derived from
Brownian Bridge Movement Model (fixed motion variance, 1000)

Route Summary

Migration start and end date (median)
- Wet to dry transition: June 18–July 2
- Dry to wet transition: October 26–November 10

Average number of days migrating
- Wet to dry transition: 34.3 days
- Dry to wet transition: 29.3 days

Migration route length
- Min: 37.7 km
- Mean: 81.5 km
- Max: 151.9 km

Data Providers

Data was collected and provided by Grant Hopcraft with the Serengeti Biodiversity Programme at the University of Glasgow, the Tanzania Wildlife Research Institute and Tanzania National Parks.

In Partnership With:

University of Glasgow

TAWIRI Tanzania Wildlife Research Institute

Hifadhi za Taifa Tanzania National Parks

CMS www.cms.int

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, is an environmental treaty of the United Nations that provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.

GIUM www.cms.int/gium

The Global Initiative on Ungulate Migration (GIUM) was created in 2020 to work collaboratively to: 1) create a Global Atlas of Ungulate Migration using tracking data and expert knowledge; and 2) stimulate research on drivers, mechanisms, threats and conservation solutions common to ungulate migration worldwide.

View and Download Map Data from the GIUM Migration Atlas

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